

Appl. No. 10/009,910
Amdt. Dated September 22, 2004
Reply to Office Action of June 24, 2004

Attorney Docket No. 81839.0107
Customer No. 26021

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Previously Presented): A method for producing a silicon single crystal, wherein the silicon single crystal is pulled while doping with carbon and controlling V/G (V: crystal pulling rate, G: crystal solid-liquid interface temperature gradient along a growing axis) to have an N-region over an entire plane of the crystal, the silicon single crystal being pulled at a rate greater than the rate of pulling a silicon single crystal with no carbon doping, and in which the silicon single crystal is grown in accordance with Czochralski method.

Claim 2 (Previously Presented): The method for producing a silicon single crystal according to claim 1, wherein the silicon single crystal is doped with nitrogen as well as carbon in which the CZ silicon single crystal is grown.

Claim 3 (Previously Presented): The method for producing a silicon single crystal according to claim 1, wherein the silicon single crystal is pulled while doping with carbon having concentration of 0.1 ppma or more and controlling V/G within a range of 0.183 to 0.177 mm²/K.min.

Claim 4 (Previously Presented): The method for producing a silicon single crystal according to claim 2, wherein a silicon single crystal is pulled while doping with carbon having concentration of 0.1 ppma or more and controlling V/G within a range of 0.183 to 0.177 mm²/K.min.

Claim 5 (Previously Presented): A method for producing a silicon single crystal, wherein the silicon single crystal produced by the method according to claim

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1 is processed into wafers, and the wafers are subjected to heat treatment at a temperature of 600 to 1000°C.

Claim 6 (Previously Presented): A method for producing a silicon single crystal, wherein the silicon single crystal produced by the method according to claim 2 is processed into wafers, and the wafers are subjected to heat treatment at a temperature of 600 to 1000°C.

Claim 7 (Previously Presented): A method for producing a silicon single crystal, wherein the silicon single crystal produced by the method according to claim 3 is processed into wafers, and the wafers are subjected to heat treatment at a temperature of 600 to 1000°C.

Claim 8 (Previously Presented): A method for producing a silicon single crystal, wherein the silicon single crystal produced by the method according to claim 4 is processed into wafers, and the wafers are subjected to heat treatment at a temperature of 600 to 1000°C.

Claim 9 (Previously Presented): A silicon wafer, which contains carbon of 0.1 ppma or more and has an N-region over an entire plane thereof, which has been pulled at a rate greater than the rate of pulling a silicon single crystal with no carbon doping, and in which oxygen precipitation nuclei of 1×10^9 number/cm³ or more are generated by a heat treatment at 600-1000°C thereto.

Claim 10 (Original): The silicon wafer according to claim 9, which contains nitrogen of 1×10^{13} number/cm³ or more.

Claims 11-18 (Cancelled).